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09/722,088	11/25/2000	Paul Lapstun	NPS028US	4151

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EXAMINER
JORGENSEN, LELAND R

ART UNIT	PAPER NUMBER
2675	3

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/722,088	Applicant(s) LAPSTUN ET AL.	
	Examiner Leland R. Jorgensen	Art Unit 2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *09/575,168* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 4, 6 – 10, 26, and 27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant fails to describe or define the terms identity data, plurality of reference points, plurality of tags, and periodic elements.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4, 6 – 10, 26, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant uses the terms regional identity data, plurality of reference points, plurality of tags, and periodic elements. The claim neither define these terms or describe how these terms relate to and differ from each other and from the coded data described in claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 - 10, 12, 13, 24, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Joyce, USPN 4,814,553.

Claim 1

Claim 1 describes a sensing device for generating orientation data when positioned or moved relative to a surface.

Orientation Data. Joyce teaches the orientation data as indicative of an orientation of the sensing device 10 relative to the surface. The sensing device generates orientation data. Joyce, col. 2, lines 35 – 59; col. 4, lines 41 – col. 5, lines 17; col. 5, lines 29 - 48.

Coded Data. The surface has coded data disposed upon the surface. The coded data is indicative, when sensed by the sensing device, of the orientation. Joyce, col. 2, lines 35 – 59; col. 3, lines 47 – col. 4, lines 13.

The sensing device includes the following.

Housing. Joyce teaches a mouse as a sensing device. It is inherent that such mouse includes a housing. Joyce, col. 4, lines 14 – 24.

Orientation Sensing Means. Joyce teaches a orientation sensing means configured to generate the orientation data using at least some of the coded data. Joyce, col. 2, lines 35 – 59; col. 3, lines 47 – col. 4, lines 13.

Communication Means. Joyce teaches a communication means configured to communicate the orientation data to a computer system. Joyce, col. 4, lines 47 – 51.

Claim 2

Orientation Data indicates Yaw, Pitch, or Roll. Claim 2 adds that the orientation data is indicative of at least one of a yaw, a pitch, and a roll of the housing relative to the surface. The specification describes the pitch as the x axis rotation, the roll as the y axis rotation, and the yaw as the z axis rotation. Specification, page 83, ¶ 8.2.1 and figure 61. Although Joyce does not specifically use the terminology yaw, pitch, or row, Joyce teaches that the orientation data is indicative of the x-y plane. Joyce, col. 7, lines 10 – 13; and figure 4. This is yaw.

Claim 3

Motion Sensing Means to generate Movement Data. Claim 3 adds that the sensing device further includes motion sensing means for generating movement data when the sensing device is moved relative to the surface. The communication means is configured to communicate the movement data to the computer system. Joyce teaches that the sensing device has a motion sensing means as is typical on any mouse. Joyce, col. 1, lines 11 – 16.

Claim 4

Region Identity Sensing Means to generate Region Identity Data. Joyce teaches that the sensing device includes region identity sensing means configured to sense, when the sensing device is positioned or moved relative to a region of the surface, and using at least some of the coded data, region identity data indicative of an identity of the region. The communication means is configured to communicate the region identity data to the computer system. Joyce, col. 2, lines 35 – 59.

Claim 5

Motion Sensing Means uses Coded Data. Joyce teaches that the motion sensing means is configured to generate the movement data using at least some of the coded data. Joyce, col. 2, lines 35 - 59.

Claim 6

Plurality of Reference Points. Joyce teaches a plurality of reference points of the region. Joyce, col. 5, lines 40 – 48. Joyce teaches motion sensing means is configured to generate the movement data on the basis of the sensing device's movement relative to at least one of the reference points. Joyce, col. 2, line 35 – 59.

Claim 7

Periodic Elements. Joyce teaches periodic elements with the motion sensing means configured to generate movement data on the basis of the sensing device's movement relative to at least one of the periodic elements. Joyce, col. 2, lines 35 – 59; col. 3, lines 47 – 62; and figures 3, 5, and 6.

Claim 8

Sample Position of the Sensing Device. Joyce teaches that the motion sensing means is configured to sample the position of the sensing device relative to the at least one reference point or periodic element to generate the movement data. Joyce, col. 2, lines 35 – 59; col. 5, lines 18 – 48.

Claim 9

Distance Estimation Means. Joyce teaches a distance estimation means configured to estimate the distance of the sensing device from the at least one reference point or periodic element. Joyce, col. 5, line 49 – col. 6, line 2.

Claim 10

Communication Means communicates Distance Data. Joyce teaches a communication means configured to communicate the distance data to a computer system. Joyce, col. 4, lines 47 – 51.

Claim 12

Orientation Sensing Means. Joyce teaches a orientation sensing means configured to generate the orientation data using at least some of the coded data. Joyce, col. 2, lines 35 – 59; col. 3, lines 47 – col. 4, lines 13.

Claim 13

Communication Means communicates Orientation Data. Joyce teaches a communication means configured to communicate the orientation data to a computer system. Joyce, col. 4, lines 47 – 51.

Claim 24

Coded Data Invisible. Joyce teaches that the coding data is printed with infrared ink, which is substantially invisible to the unaided human eye. Joyce, col. 2, lines 39 – 42; col. 3, lines 52 – 56.

Claim 25

Infrared Ink. Joyce teaches that the coding data is printed with infrared ink. Joyce, col. 2, lines 39 – 42; col. 3, lines 52 – 56.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce in view of Blesser, USPN 4,577,057.

Claim 11

Distance Estimation Means. Claim 11 adds that the motion sensing means is configured to use the distance estimated by the distance estimation means to resolve a more accurate position of the sensing device than indicated by the at least one reference point or periodic element alone. Joyce teaches a distance estimation means. Joyce, col. 5, line 49 – col. 6, line 2.

Joyce, however, does not specifically teach that the motion sensing means is configured to use the distance estimated by the distance estimation means to resolve a more accurate position of the sensing device than indicated by the at least one reference point or periodic element alone.

Blesser teaches that the motion sensing means is configured to use the distance estimated by the distance estimation means to resolve a more accurate position of the sensing device on the surface than indicated by a location-indicating tag alone. Blesser, col. 2, lines 27 – 29, 33 – 35; col. 5, lines 50 – 64.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the distance estimation means as taught by Blesser with the sensing device as taught by Joyce. Blesser teaches the use of systems similar to Joyce.

> Digitizing tablet systems are well known in the art and are used in a variety of applications. These systems generally include a tablet, a stylus and some instrumentality for producing some form of interaction between the stylus and the tablet from which is derived digital data signals representing the position of the stylus on the tablet.

Blesser, col. 1, lines 11 – 17. Blesser teaches the drawbacks of these prior systems and teaches an improvement.

> When the stylus is held in the hand of the user it is generally not held at right angles to the tablet but rather at some acute angle thereto. Furthermore, in the course of writing on the tablet the angle will very often change. In systems in which the element in the stylus which interacts with the element in the tablet is located at the exact tip of the stylus and directly contacts an element in the tablet, the angle in which the stylus is held relative to the tablet will generally not be a factor. However, if the element is not at the tip of the stylus an error, called stylus tilt error, will occur if the stylus is not exactly perpendicular to the working surface of the tablet. This will happen because the position signal produced by the location of the conductive element in the stylus relative to the grid of conductive elements in the tablet will not correspond the position where the tip of the stylus is actually in contact with the tablet. Furthermore, if the angle of tilt changes as a line or character is drawn, which is very often the case, the size of the tilt error from point to point over the line or character will change.

Blesser, col. 1, lines 41 – 60. Blesser teaches, "It is yet still another object of this invention to provide a new and improved technique for determining the position of a stylus on a work

surface." Blesser, col. 2, lines 33 – 35. Blesser teaches that its invention can be applied to all types of digitizing surfaces.

> It is to be understood that the invention is applicable to any type of digitizing table system in which positional data is obtained by the interaction of some type of element in a stylus, located at some finite distance from the tip of the stylus, with an array or grid of elements in the tablet. The interaction may be realized, for example, by capacitive, inductive or acoustic coupling. The coupling signal may either be emitted from the stylus or from the tablet and the elements in the tablet may either be arranged in a rectangular (Cartesian) or polar coordinate configuration. The stylus may be a pen type or pencil type or the like or even a stylus that does not have a writing (i.e. recording) element.

Blesser, col. 3, lines 45 – 57.

9. Claims 14 – 17 and 19 - 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce in view of Masaki et al., USPN 5,159,321.

Claim 14

Acceleration Sensing Means. Claim 14 is dependant on claim 3 and adds that the movement sensing means includes at least on acceleration sensing means. The acceleration sensing means is configured to sense acceleration of the sensing device as it is moved relative to the surface region. The movement sensing means is configured to generate the movement data by periodically sampling the acceleration.

Joyce does not teach an acceleration sensing means.

Masaki teaches an acceleration sensing means. Masaki, col. 6, line 61 – col. 7, line 1.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the acceleration sensing means of Masaki with the position sensing device of Joyce. This would allow the position sensing device to "enter figures, letters, numerals, etc. into a

computer to which the input device is connected, in the exact pattern followed by the input device." Masaki, col. 1, lines 38 – 45. See also Masaki, col. 7, lines 16 – 29.

Claim 15

Orthogonal Components of Acceleration. Masaki teaches that the acceleration sensing means is configured to sense at least two substantially orthogonal components of acceleration. Masaki, col. 6, line 61 – col. 7, line 1.

Claim 16

Timer Means. Masaki teaches a timer means configured to generate a time reference as the sensing device is moved relative to the surface region. Masaki, col. 5, line 32 – 45; col. 6, lines 17 – 20.

Claim 17

Communicative Means communicates Time Reference Data. Masaki teaches that the communicative means is configured to communicate time reference data to the computer system. Masaki, col. 5, line 32 – 45; col. 6, lines 17 – 20; and figure 10.

Claim 19

Force Sensing Means. Masaki teaches a force sensing means configured to sense a force applied to the surface by the sensing device. Masaki, col. 3, lines 13 – 47.

Claim 20

Communicative Means communicates Force Data. Masaki teaches that the communicative means is configured to communicate force data to the computer system. The force data is indicative of the force. Masaki, col. 1, lines 38 – 45; col. 3, lines 54 – 60.

Claim 21

Stroke Detection Means. Masaki teaches a stroke detection means configured to detect, by way of force, when the sensing device is applied to the surface and removed from the surface, thereby to identify the duration of the stroke. Masaki, col. 6, line 9 – col. 7, line 1.

Claim 22

Marking Nib. Masaki teaches a marking nib 9 for marking the surface. Masaki, col. 2, lines 44 – 57, figure 3.

Claim 23

Stylus or Pen. Masaki teaches that the sensing device is in the form of a pen. Masaki, col. 2, lines 38 – 57, figures 1 and 2.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce in view of Giobbi et al., USPN 5,469,193.

Claim 18

Wireless Communicative Means. Claim 18 adds that the communicative means is a wireless communicative means.

Joyce does not teach a wireless communicative means.

Giobbi teaches a cordless pointing apparatus for computer input wherein the communicative means is a wireless communicative means. Giobbi, col. 1, lines 51 – 63.

It would have been obvious to one of ordinary skill in the art at the time of the invention for one to combine the cordless pointing apparatus of Giobbi with the position sensing device of Joyce to provide a cordless position sensing device. Giobbi invites such combination arguing,

"no physical connection is required between the pointer 36 and the receiver 32..." Giobbi, col. 4, lines 13 – 14. Giobbi also states, "This system can be used as the basis of a computer input pointing device, such as a conventional pen or mouse, or in many other situations where the exact positioning and/or movement information of an object is required." Giobbi, col. 4, lines 14 – 18.

11. Claims 26 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce in view of Bennett et al., USPN 5,051,736.

Claim 26

Plurality of Tags to Identify a Region. Claim 26 adds that the coded data includes a plurality of tags. Each tag is indicative of an identity of a region within which the tag lies, and of a reference point of the region. The region is associated with the surface. The reference point is indicative of the position of the tag within the region.

Assuming that plurality of tags has a meaningful difference from the coded data and suggests more detail than contained in Joyce, Joyce does not specifically teach a plurality of tags in the coded data.

Bennett teaches a plurality of tags indicative of an identity of a region within which the tag lies, and of a reference point of the region. The region is associated with the surface. The reference point is indicative of the position of the tag within the region. Bennett, col. 5, lines 5 – 20; col. 9, line 53 – col. 10, line 3; and figures 1 and 6. Bennett teaches TACs or Tablet Address Cells as optically detectable patterns on a surface representing binary codes that indicate an X-Y position. Bennett, col. 5, lines 7 – 10.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the plurality of tags, the TACs, of Bennett with the position sensing device of Joyce. Such system provides a very high density of digitized coordinate code input data on the surface. Bennett, col. 3, lines 24 – 27; col. 10, lines 50 – 55.

Claim 27

Each Tag includes Periodic Element. Bennett teaches that each tag the plurality of tags is indicative of an identity of a region within which the tag lies and includes at least one periodic element of the coded data. Bennett, col. 10, lines 6 – 33, figure 6 and 7.

Claim 28

Prospective Distortion of Coded Data. Bennett teaches that an orientation sensing means can be configured to infer the orientation from prospective distortion of at least some of the coded data. Bennett notes, "It is also possible to determine the tilt angle of the stylus (a potentially useful piece of information in some applications) by analyzing the perspective distortion of the TAC [Tablet Address Cells] shape." Bennett, col. 11, lines 59 – 62.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Philips et al., USPN 4,963,703, teaches a coordinate determining device.

Ward et al., USPN 6,184,873 B1, teaches a pen positioning system.

Sato et al., USPN 4,947,156, teaches a handwritten character input device.

Romein, USPN 4,246,439, teaches an acoustic stylus with writing tablet.

Wolff et al., USPN 6,081,261, teaches a pen-like instrument with a writing point for making entries on a document and inputting the entries into a computer system.

Wolff et al., USPN 6,201,903, teaches a method and apparatus for sending an facsimile of a message.

Knowles, USPN 5,905,251, teaches a bar code scanner for surfing the Internet.

Cambridge, USPN 5,248,855, teaches a sensing stylus for measuring the pitch and roll and notes prior art devices to teach pitch, row, and yaw. Cambridge, col. 1, lines 27 – 30; col. 2, lines 46 – 48.

Craig, USPN 4,975,546, teaches orientation data that is indicative of a yaw of the housing relative to the surface. Craig, col. 3, lines 5 – 9; col. 4, lines 30 – 37.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland Jorgensen whose telephone number is 703-305-2650. The examiner can normally be reached on Monday through Friday, 7:00 a.m. through 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703-305-9720.

Any response to this action should be mailed to:

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Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, telephone number (703) 306-0377.

lrj

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